



Docket No.: 4100-0120P
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Jurgen LAUTERJUNG et al.

Application No.: 09/701,782

Confirmation No.: 8137

Filed: January 25, 2001

Art Unit: 2637

For: A PROCESS FOR PROCESSING OFDM-SIGNALS RECEIVED SIMULTANEOUSLY BY A MULTI-ANTENNA SYSTEM

Examiner: E. M. Chang

INFORMATION DISCLOSURE STATEMENT
(SUBMISSION AFTER FILING OF AN APPLICATION BUT BEFORE FINAL REJECTION OR NOTICE OF ALLOWANCE OR CONCURRENTLY WITH A RULE 1.114 RCE APPLICATION)

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 C.F.R. §§ 1.97 and 1.98, applicant(s) hereby submit(s) an Information Disclosure Statement for consideration by the Examiner.

I. LIST OF PATENTS, PUBLICATIONS OR OTHER INFORMATION

The patents, publications, or other information submitted for consideration by the Office are listed on the PTO-SB08(s), attached hereto.

II. **COPIES** 08/22/2005 JADDO1 00000089 09701782
 01 FC:1806 180.00 OP

a. Copies of cited U.S. patents and patent application publications are not included.

Copies of foreign patent documents and non-patent literature are included.

b. Some or all of the documents listed on the PTO-SB08 are not enclosed because they were cited in the International Search Report and copies should already be in the PTO file. If copies are needed, please contact the undersigned.

c. REFERENCES PREVIOUSLY CITED OR SUBMITTED - Pursuant to 37 C.F.R. §1.98(d), consideration of information listed on the PTO-SB08 form(s) is requested since any patents, publications, or other information which are listed on the PTO-SB08 form(s) but for which copies are not enclosed herewith, were previously cited by or submitted to the PTO in one of the following applications which has been relied upon for an earlier filing date under 35 U.S.C. § 120:

U.S. Appl. No(s) and U.S. Filing Date

@@@ filed @@@

III. CONCISE EXPLANATION OF THE RELEVANCE

(check at least one box)

a. DOCUMENTS IN THE ENGLISH LANGUAGE - The patents, publications, or other information listed on the attached PTO SB08 are in the English language and therefore, do not require a statement of relevancy.

b. DOCUMENTS NOT IN THE ENGLISH LANGUAGE - A concise explanation of the relevance of all patents, publications, or other information listed that is not in the English language is as follows:

c. ENGLISH LANGUAGE SEARCH REPORT - An English language version of the search report or action that indicates the degree of relevance found by the foreign office is attached, thereby satisfying the requirement for a concise explanation. See MPEP 609(III)(A)(3).

d. OTHER - The following additional information is provided for the Examiner's consideration.

IV. FEES (check one box)

a. This Information Disclosure Statement is being filed concurrently with the filing of a new patent application; therefore, no fee is required.

b. This Information Disclosure Statement is being filed concurrent with the filing of a continuation-in-part, continuation, or divisional patent application; therefore, no fee is required.

c. This Information Disclosure Statement is being filed within three months of the filing date of a national application (37 C.F.R. § 1.97(b)(1)). No fee or statement is required.

(This section is not to be used with RCE's.)

d. This Information Disclosure Statement is being filed within three months of the date of entry of the national stage as set forth in § 1.491 in an international application (37 C.F.R. § 1.97(b)(2)). No fee or statement is required.

e. This Information Disclosure Statement is being filed concurrently with the filing of a Request for Continued Examination under § 1.114 (37 C.F.R. § 1.97(b)(4)). No fee or statement is required.

- f. This Information Disclosure Statement is being filed before the mailing date of a first Action on the merits (37 C.F.R. § 1.97(b)(3)). No fee or statement is required. In the event that a first Office Action on the merits has been issued, please consider this IDS under 37 C.F.R. § 1.97(c) and see the statement under 37 C.F.R. § 1.97(e) below, or, if no statement has been made, charge our deposit account for the fee as required by 37 C.F.R. § 1.17(p).
- g. This Information Disclosure Statement is being filed before the mailing date of a Final Office Action under 37 C.F.R. § 1.113 (See 37 C.F.R. § 1.97(c)(1)) or before the mailing date of a Notice of Allowance under 37 C.F.R. § 1.311 (See 37 C.F.R. § 1.97(c)(2)).

No statement; therefore, a fee as required by 37 C.F.R. § 1.17(p) is attached.

or

See the statement below. No fee is required.

V. STATEMENT UNDER 37 C.F.R. § 1.97(e)

(check only one box)

The undersigned hereby states that:

- a. **Each item of information contained in the IDS was first cited in any communication from a foreign Patent Office in a counterpart foreign application not more than 30 days prior to the filing of this IDS; or**
- b. **Each item of information contained in the IDS was first cited in any communication from a foreign Patent Office in a counterpart foreign application not more than three months prior to the filing of this IDS; or**

c. No item of information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of IDS was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of the IDS.

d. Some of the items of information were cited in a communication from a foreign Patent Office. As to this information, the undersigned states that each item of information contained in the IDS was first cited in a communication from a foreign Patent Office in a counterpart foreign application not more than three months prior to the filing of this IDS. As to the remaining information, the undersigned hereby states that no item of this remaining information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application and, to the best of my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this statement.

VI. PAYMENT OF FEES (check one box)

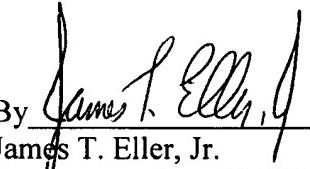
- The required fee is listed on the attached Fee Transmittal.
 No fee is required.

If the Examiner has any questions concerning this IDS, he/she is requested to contact the undersigned. If it is determined that this IDS has been filed under the wrong rule, the PTO is requested to consider this IDS under the proper rule and charge the appropriate fee to Deposit Account No. 02-2448.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to our Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under § 1.17; particularly, extension of time fees.

Dated: AUG 19 2005

Respectfully submitted,

By 
James T. Eller, Jr.

Registration No.: 39,538
BIRCH, STEWART, KOLASCH & BIRCH, LLP
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Suite 100 East
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Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicant

Attachment(s):

GJD

- PTO-SB08
- Documents
- Foreign Search Report
- Fee
- Other:



Under the Paperwork Reduction Act of 1995, no person is required to respond to a collection of information unless it displays a valid OMB control number.

**Effective on 12/08/2004.
See pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).**
FEE TRANSMITTAL
For FY 2005

Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ 180.00)

Complete if Known

Application Number	09/701,782-Conf. #8137
Filing Date	January 25, 2001
First Named Inventor	Jurgen LAUTERJUNG
Examiner Name	E. M. Chang
Art Unit	2637
Attorney Docket No.	4100-0120P

METHOD OF PAYMENT (check all that apply)

Check Credit Card Money Order None Other (please identify): _____
 Deposit Account Deposit Account Number: 02-2448 Deposit Account Name: Birch, Stewart, Kolasch & Birch, LLP

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

Charge fee(s) indicated below Charge fee(s) indicated below, except for the filing fee
 Charge any additional fee(s) or underpayment of fee(s) under 37 CFR 1.16 and 1.17 Credit any overpayments

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		
	Fee (\$)	Small Entity	Fee (\$)	Small Entity	Fee (\$)	Small Entity	Fees Paid (\$)
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description

Each claim over 20 (including Reissues)

Small Entity
Fee (\$) **Fee (\$)**

50 25

Each independent claim over 3 (including Reissues)

200 100

Multiple dependent claims

360 180

Total Claims	Extra Claims	Fee (\$)	Fee Paid (\$)	Multiple Dependent Claims
- 20 =	x	=		Fee (\$) Fee Paid (\$)

Indep. Claims	Extra Claims	Fee (\$)	Fee Paid (\$)	
- 3 =	x	=		

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
- 100 =	/50	(round up to a whole number) x	=	

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge): 1806 Submission of an Information Disclosure Statement 180.00

SUBMITTED BY

Signature	James T. Eller, Jr.	Registration No. (Attorney/Agent)	39,538	Telephone	(703) 205-8000
Name (Print/Type)	James T. Eller, Jr.			Date	

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Substitute for form 1449A/B/PTO
**INFORMATION DISCLOSURE
 STATEMENT BY APPLICANT**
(Use as many sheets as necessary)

Sheet 1 of 2				Complete if Known	
				Application Number	09/701,782-Conf. #8137
				Filing Date	January 25, 2001
				First Named Inventor	Jurgen LAUTERJUNG
				Art Unit	2637
				Examiner Name	E. M. Chang
				Attorney Docket Number 4100-0120P	

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
AA*	US-5,761,613		06-02-1998	Saunders et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)				
BA	EP-0 600 547 A1		06-08-1994			
BB	EP-0 600 547 B1		02-09-2000			
BC	WO-91/20142		12-26-1991			

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. * CITE NO.: Those application(s) which are marked with an single asterisk (*) next to the Cite No. are not supplied (under 37 CFR 1.98(a)(2)(iii)) because that application was filed after June 30, 2003 or is available in the IFW. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
CA	Wilson et al., "16 QAM Modulation with Orthogonal Frequency Division Multiplexing in a Rayleigh-Fading Environment", XP 997704, pp.1660-1664		
CB	Masahiro, Hitoshi and Richard, NTT and Lucent, doc:IEEE 802.11-98/1998 (May 1998)		
CC	Bulumulla et al., "An Adaptive Diversity Receiver for OFDM in Fading Channels", Department of Electrical Engineering, University of Pennsylvania, IEEE, pp.1325-1329 (1998)		
CD	Cimini, Jr., et al., "OFDM with Diversity and Coding for Advanced Cellular Internet Services", AT&T Labs - Research, IEEE, pp.305-309 (1997)		
CE	European Standard (Telecommunications Series), "digital Video Broadcast (DVB); Framing structure, channel coding and modulation for digital terrestrial television", EN 300 744 V1.1.2 (1997-08)		
CF	McGibney et al., "Implementation of a High Performance Wireless LAN", pp.645-650, IEEE		
CG	Tufvesson et al., "Pilot Assisted Channel Estimation for OFDM in Mobile Cellular Systems", Department of Applied Electronics, Lund University VTC '97		
CH	Proakis, Digital Communications, Third Edition, "Diversity Techniques for Fading Multipath Channels", pp.777-781 (1995)		
CI	Gibson, The Mobile Communications Handbook", IEEE Press, pp.172-173		
CJ	Microwave Mobile Communications, Chapters 5 and 6, edited by William C. Jakes (1974)		
CK	Proceedings of the IRE, pp.1074-1103		
CL	Sawahashi et al., Electronic Letters, Vol. 32, No. 6, pp.522-523 (March 14, 1996)		
CM	Baum et al., "A Comparison of Differential and Coherent Reception for a Coded OFDM System in a Low C/I Environment", IEEE, pp.300-304 (1997)		
CN	Kim, "Coding Strategies for OFDM with Antenna Diversity for High-Bit-Rate Mobile Data Applications", VTC '98, pp.763-767 (1998)		
CO	Lamarca, "Multichannel Receivers for OFDM and TDMA in Mobile Communications", IEEE, pp.3865-3868 (1997)		

Examiner Signature	Date Considered
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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.



Substitute for form 1449A/B/PTO				<i>Complete if Known</i>	
				Application Number	09/701,782-Conf. #8137
				Filing Date	January 25, 2001
				First Named Inventor	Jurgen LAUTERJUNG
				Art Unit	2637
				Examiner Name	E. M. Chang
Sheet	2	of	2	Attorney Docket Number	
4100-0120P					

CP	Casas et al., "OFDM for Data Communication Over Mobile Radio FM Channels - Part II: Performance Improvement", IEEE Transactions on Communications, Vol. 40, No. 4, pp.680-683 (April 1992)	
CQ	Kim et al., BER Analysis of QAM with MRC Space Diversity in Rayleigh Fading Channel", IEEE, pp.482-485 (1995)	
CR	Eng et al., "Comparison of Diversity Combining Techniques for Rayleigh-Fading Channels", IEEE Transactions on Communications, Vol. 44, No. 9, pp.1117-1129 (September 1996)	
CS	Sunaga et al., "Performance of Multi-Level QAM with Post-Detection Maximal Ratio Combining Space Diversity for Digital Land-Mobile Radio Communication", IEEE Transactions on Vehicular Technology, Vol. 42, No. 3, pp.294-301 (August 1993)	
CT	Sampei et al., "Rayleigh Fading Compensation for QAM in Land Mobile Radio Communications", IEEE Transactions on Vehicular Technology, Vol. 42, No. 2, pp.137-147 (May 1993)	
CU	Sampei et al., "Rayleigh Fading Compensation Method for 16QAM in Digital Land Mobile Radio Channels", IEEE, pp.640-646 (1989)	
CV	Cimini, Jr., "Analysis and Simulation of a Digital Mobile Channel Using Orthogonal Frequency Division Multiplexing", IEEE Transations on Communications, Vol. COM.33, No. 7, pp.665-675 (July 1985)	
CW	Kalet, "A Multitone-Antenna Diversity Approach to PCS Communications", pp.473-476 (1996)	
CX	Ulrich Reimers, Digitale Fernsehtechnik, Datenkompression und Übertragung für DVB, 2., vollständig überarbeitete Auflage, Mit 175 Abbildungen	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional). ²Applicant is to place a check mark here if English language Translation is attached.

Examiner Signature	Date Considered
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